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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/747,965	12/29/2003	Kaladhar Radhakrishnan	42P18282	9014
8791	7590	05/09/2006	EXAMINER	
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ART UNIT				
PAPER NUMBER				

DATE MAILED: 05/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/747,965	RADHAKRISHNAN ET AL.	
	Examiner	Art Unit	
	John B. Vigushin	2841	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 28 February 2006.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-18 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) 6-18 is/are allowed.
- 6) Claim(s) 1,2,4 and 5 is/are rejected.
- 7) Claim(s) 3 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 29 December 2003 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____

DETAILED ACTION

1. The present Office Action is responsive to Applicant's Amendment filed February 28, 2006. The Examiner acknowledges the amendment to Claim 15. Claims 1-18 remain pending in the instant amended Application.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 4 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Bewley et al. (US 3,519,959).

As to Claim 1, Bewley et al. discloses, in Figs. 3 and 4, a capacitor structure comprising: a plurality of first conductive (ground) layers 21, 25, 27, 31; a plurality of second conductive layers 23 (power layer for providing voltage V2), 29 (clock signal layer) and power layer for providing voltage V1 (not provided with a reference number but accessed through via 46, as shown in Figs. 1 and 3); a plurality of dielectric layers 22, 24, 26 and 28 separating adjacent conductive layers (col.4: 33-36, col.4: 62-col.5: 8; col.5: 13-26); a plurality of first conductive vias 45 (Fig. 1) to electrically connect the first conductive layers 21, 25, 27, 31 (Fig. 4), a plurality of second conductive vias 46, 47, 48 (Fig. 1) to electrically connect the second conductive layers 23, 29 and the V1 layer (Fig. 4; col.5: 69-col.6: 3); and wherein openings 45, 46, 47, 48, 49, etc. (Figs. 1 and 4)

are formed in the capacitor structure to enable pins 52 from an integrated circuit (IC) package 50 to pass through (Figs. 5, 6 and 7; col.6: 4-16).

As to Claim 2, Bewley et al. further discloses each of the openings has a diameter which is greater than a diameter of each pin 52 from the IC package 50 such that a defined distance is maintained between an edge of each respective opening and each respective pin 52 (Fig. 6; col.6: 10-16).

As to Claim 4, Bewley et al. further discloses a plurality of first conductive terminals (annular terminals 35) coupled to the plurality of first conductive vias 45 and a plurality of second conductive terminals (annular terminals 35) coupled to the plurality of second conductive vias 46, 47, 48 (Figs. 1, 2 and col.4: 22-32; also, the annular terminals coupled to each via are shown in Figs. 1 and 7; in Fig. 8, the embodiment shows first and second annular terminals coupled to vias 75 and vias 77).

As to Claim 5, Bewley et al. further discloses the first conductive terminals 35 (Figs. 1 and 2) associated with ground layers 21, 25, 27, 31 are configured for coupling to a ground plane provided in IC package 50; and the second conductive terminals 35 associated with power plane 23 and other power planes (Figs. 1 and 2) are configured for coupling to a power plane provided in IC package 50 (col.3: 56-71; col.4: 22-32).

Allowable Subject Matter

4. Claims 6-18 have been allowed.

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5. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter:

As to Claim 3, patentability resides in *the limitation wherein the openings are arranged to coincide with at least four pins from the IC package that are located directly underneath a semiconductor die*, in combination with the other limitations of the claim.

As to Claims 6-14, patentability resides in the combination of: 1) an IC coupled to a first side of an IC package; and 2) a capacitor attached to a second side of the IC package underneath the integrated circuit, the capacitor having openings to enable pins from the IC package to pass through, as recited in base Claim 6.

As to Claims 15-18, patentability resides in electrically connecting and attaching conductive terminals between the capacitor and the IC package, in combination with the other limitations of base Claim 15. [Examiner's Note]: Lockhart, Jr. (US 3,880,493) does not attach conductive terminals between the capacitor 37 and the IC package 11 (see Fig. 2). See also Applicant's arguments regarding Claims 15-18 on p.6 of the above-cited instant Amendment].

Response to Arguments

7. Applicant's arguments, see p.6 of the instant Amendment, filed February 28, 2006, with respect to the rejection(s), over Lockhart, Jr. (US 3,880,493), of Claims 15-18 under 35 USC § 102(b) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn and Claims 15-18 now stand allowed over the prior art of record. However, upon further consideration, a new ground(s) of rejection is made in view of a newly acquired prior art reference, Bewley et al. (US 3,519,959), over Claims 1, 2, 4 and 5, which were previously indicated as allowable in the Examiner's Office Action of December 15, 2005.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Larson (US 2004/0045161 A1) discloses an IC 106 coupled to a first side of an IC package 104 and a capacitor 214 attached to a second side of the IC package 104 underneath the IC 106. Larson does not teach capacitor 214 having openings to enable pins from the IC package 104 to pass through. The IC package 104 is land-grid-array (LGA) connected to capacitor 214 by elastomeric ("fuzz button") socket connectors 406 having pressure applied thereto by mechanical press 402 (Fig. 4; paragraph [0030]).

9. The withdrawal of the previously indicated allowability of Claims 1-5 in the present Office Action requires that the present Office Action be made NON-FINAL.

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10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John B. Vigushin whose telephone number is 571-272-1936. The examiner can normally be reached on 8:30AM-5:00PM Mo-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on 571-272-1957. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John B. Vigushin
Primary Examiner
Art Unit 2841

jbv
May 07, 2006